

REDEFINITION OF THE GENERA *PELECYPHORUS* AND *PHILOLITHUS* WITH A KEY TO THE GENERA OF THE TRIBE ASIDINI (COLEOPTERA: TENEBRIONIDAE).¹

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ABSTRACT

Casey (1912) raised the genus *Pelecyphorus* Solier from synonymy with *Asida* Latreille, and designated *Pelecyphorus mexicanus* Solier as type-species. He considered *Philolithus* Lacordaire as a junior synonym of *Pelecyphorus*, but designated *Pelecyphorus carinatus* LeConte as type-species of *Philolithus*. Examination of adult and larval specimens revealed that the 2 type-species are not congeneric. Therefore *Philolithus* is raised from synonymy and placed in it are 31 nominal species and subspecies formerly in *Pelecyphorus*. The genus *Pelecyphorus* is restricted to its type-species *P. mexicanus*. Lectotypes of *P. carinatus* and *P. mexicanus* are designated, and the type-locality of *P. mexicanus* is restricted. Three former species of *Pelecyphorus* are placed in other genera: *Asidina semilaevis* (Horn) NEW COMB., *Stethasida laevigata* (Papp) NEW COMB., and *Notiasida lugubris* (Wilke) NEW COMB. An illustrated key is presented to the 26 genera of the tribe Asidini in North America including Mexico.

Solier (1836) described the genus *Pelecyphorus* and included in it 4 new species; *mexicanus*, *asidoides*, *foveolatus*, and *capensis*. In the following 20 years LeConte described several new North American species of *Pelecyphorus*. Lacordaire, who was corresponding with LeConte, did not believe that those species belonged in *Pelecyphorus*. He sent LeConte a key and description of the new genus *Philolithus*. LeConte (1858a) published Lacordaire's new genus and transferred all of his own species of *Pelecyphorus* into it. Since LeConte gave Lacordaire full credit for the description, the correct citation of this genus is *Philolithus* Lacordaire, 1858:18, and not 1859:157 as cited in the Leng catalogue (1920). The following year Lacordaire (1859) published an amplified description of *Philolithus*. He also transferred *asidoides* and *capensis* out of *Pelecyphorus*, leaving only *mexicanus* and *foveolatus* in that genus. With the works of Horn (1870) and Champion (1884), *Pelecyphorus*, *Philolithus*, and other American genera were submerged in synonymy with the Old-world genus *Asida* Latreille. Casey (1912) in revising the American genera of the tribe Asidini, restricted *Asida* to the Old-world, described many new genera, and resurrected old ones including *Pelecyphorus*. He designated *P. mexicanus* Solier as type-species of *Pelecyphorus*. Although he listed *Philolithus* as a junior synonym of *Pelecyphorus*, he designated *P. carinatus* LeConte as type-species of *Philolithus*. Casey never saw a specimen of *mexicanus*, and as a result he placed into *Pelecyphorus* species which he considered to be congeneric with *carinatus*.

Recently I have been able to examine Solier's 2 syntype specimens of *Pelecyphorus mexicanus* in the Muséum National d'Histoire Naturelle,

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Paris, and LeConte's 2 syntypes of *Pelecyphorus carinatus* in the Museum of Comparative Zoology. They are definitely not congeneric, and in fact, they belong in rather distant groups of the tribe Asidini. *P. carinatus* has a small ligula hidden under the mentum, an extremely enlarged apical segment of the maxillary palpi, elongate-oval eyes which are not emarginate, a deflexed and broad prosternal process, and simple setae; while *P. mexicanus* has a larger and exposed ligula, relatively smaller maxillary palpi, narrower and emarginate eyes, a prominent and narrow prosternal process, and highly modified setae (Fig. 1-10, 32). Comparison of reared larvae of both species further emphasized the differences. It became clear that Casey had erred in his concept of *Pelecyphorus*. Therefore the genus *Philolithus* is herein removed from synonymy, and in it are placed most of the species formerly in the genus *Pelecyphorus*.

GENUS *Philolithus* LACORDAIRE

Philolithus Lacordaire, 1858:18; Lacordaire, 1859:157.

Pelecyphorus of Casey, 1912:105 (not Solier, 1836).

Type-species: *Pelecyphorus carinatus* LeConte, 1851:128; by subsequent designation of Casey, 1912:105. LECTOTYPE hereby designated as a male specimen in the Museum of Comparative Zoology, bearing the following labels: a gold disk, a label "Type 4532", and a third label "P. carinatus LeC. S. Felipe". A fourth label has been added reading "LECTOTYPE male *Pelecyphorus carinatus* LeConte, examined by K. W. Brown, Dec. 1967." PARALECTOTYPE hereby designated as a female specimen in the same museum bearing only a gold disk label. A second label has been added similar to the above lectotype label, but reading "PARALECTOTYPE female," etc. Type-locality: San Felipe, San Diego Co., California.

Generic description: Mentum large, transverse hexagonal to broadly cordate; notched apically; usually separated from postgenal process by a narrow space and from mandibles by a wide space (Fig. 1). Gular pedestal distinct, truncate, about half as wide as mentum. Postgenal process short, rarely extending beyond basal one-third of mentum. Ligula very small, retracted and completely hidden by mentum. Apical segment of male maxillary palpi extremely enlarged and scalene, with proximal angle acute and prolonged (Fig. 2). Apical segment of female maxillary palpi smaller and recti-triangular (Fig. 3). Eyes elongate-oval, edges almost parallel and not emarginate (Fig. 4). Tarsi with short and spiniform hairs beneath. Anterior tibiae cylindrical, moderately rugose to smooth, with the dorsal apical angle blunt to moderately acute. Prosternal process broad, deflexed and prolonged backward as a thin lobe appressed to the mesosternum; longitudinally impressed between procoxae. Basal margin of pronotum truncate, with hind angles sometimes acute but not projecting backward over elytra (Fig. 5). Width of pronotum at hind angles equal to or slightly greater than width of elytra at humeri. Elytra with marginal and outer discal carina well developed, but inner discal carina weak to absent. Pronotum and elytra with simple, inconspicuous setae, or glabrous.

Remarks: The genus *Philolithus* is a member of one of the most distinctive and well defined generic groups in the tribe Asidini. The other

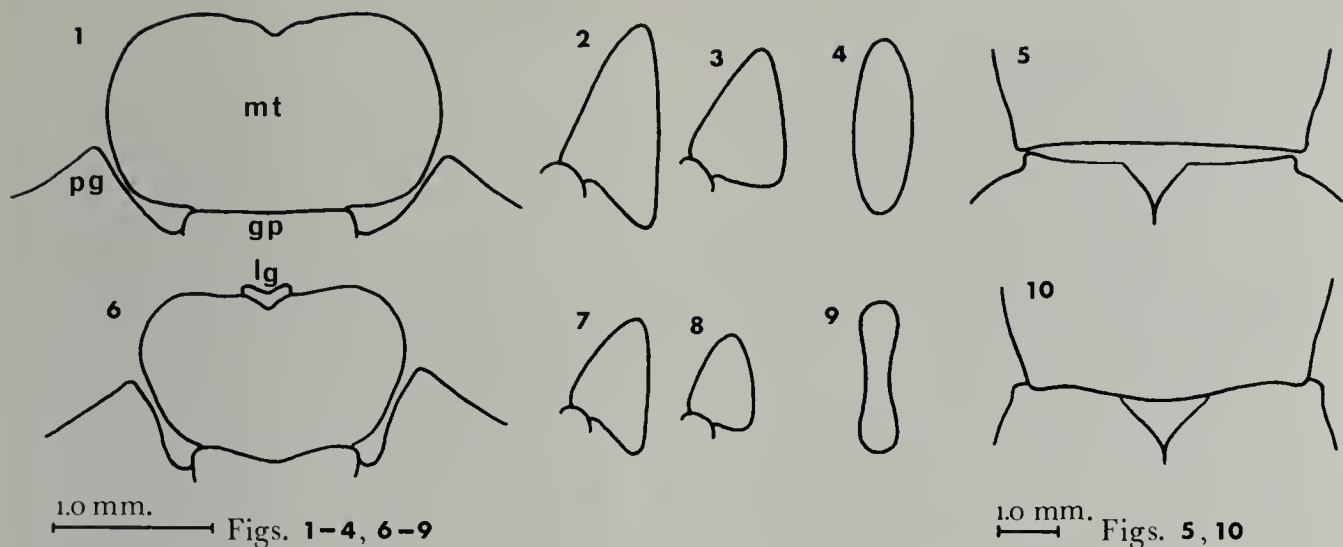


FIG. 1-5: *Philolithus carinatus* (LeConte). 1) mentum (mt), gular pedestal (gp), postgenal process (pg). 2) apical segment of maxillary palpus, male. 3) same, female. 4) eye. 5) pronotum-elytra junction. FIG. 6-10: *Pelecyphorus mexicanus* Solier. 6) mentum, ligula (lg), gular pedestal, postgenal process. 7) apical segment of maxillary palpus, male. 8) same, female. 9) eye. 10) pronotum-elytra junction.

genera in the group are *Gonasida* Casey, *Glyptasida* Casey, *Tisamenes* Champion, and *Herthasida* Wilke. Their geographic range covers almost the entire range of the tribe Asidini in North America. They occur from central Mexico to southern Canada, and from California to Kansas. Although the dorsal appearance of these genera differ markedly, they are tightly linked in sharing many characters including the following: ligula hidden by mentum, gular pedestal narrow, postgenal process short, eyes not emarginate, apical segment of maxillary palpi greatly enlarged and sexually dimorphic, and prosternal process broad and deflexed. This combination of characters distinguishes the group from all other Asidini. The key should be consulted for differences between the various genera.

Larvae of several species of *Philolithus*, *Gonasida*, and *Glyptasida* have been reared. They are remarkably similar to each other and difficult to tell apart, again demonstrating the close-knit nature of this group. They can be distinguished easily from larvae of the other genera of Asidini reared so far (*Asidina*, *Parasida*, *Pelecyphorus*, *Stenomorpha*, *Stethasida*, and *Trichiasida*) by the reduction of the urogomphi to minute tubercles. This is unusual since larvae of the asidine genera mentioned above, and in fact most Tenebrionidae, have distinct urogomphi.

There are sufficient consistent differences to indicate that the *Philolithus* group of genera must have split off early in the evolution of North American Asidini. On the other hand the divergence of the five described genera in the group was probably relatively recent, since they share many apparently derived characters in common, and are differentiated almost exclusively by dorsal characters.

LIST OF NOMINAL SPECIES OF *Philolithus*.

For convenience I have retained Casey's 3 species groups. Although no judgement of the status of the species is made in this paper, it must be noted that few of Casey's species will stand under modern systematic concepts. A revision of the genus *Philolithus* is planned. All the species

listed below were originally described in *Pelecyphorus* by their authors, or placed there by Casey (1912).

GROUP I (elytra rugose, pronotum not carinate).

<i>abscissus</i> (Casey, 1912:109) NEW COMB.	Arizona
<i>aegrotus</i> (LeConte, 1861:337)	Baja Calif.
ssp. <i>limbatus</i> (Casey, 1912:107) NEW COMB.	Baja Calif.
<i>corporalis</i> (Casey, 1912:107) NEW COMB.	Arizona
<i>fumosus</i> (Casey, 1912:109) NEW COMB.	California
<i>morbillosus</i> (LeConte, 1858b:74) NEW COMB.	Sonora
ssp. <i>pacatus</i> (Casey, 1912:110) NEW COMB.	Arizona
ssp. <i>sobrius</i> (Casey, 1912:110) NEW COMB.	Arizona
<i>parvus</i> (Casey, 1912:110) NEW COMB.	Arizona
<i>piceus</i> (Casey, 1912:111) NEW COMB.	Arizona
ssp. <i>crudelis</i> (Casey, 1912:111) NEW COMB.	Arizona
<i>reptans</i> (Casey, 1912:108) NEW COMB.	Arizona
<i>snowi</i> (Casey, 1912:108) NEW COMB.	Arizona
<i>socer</i> (Casey, 1912:108) NEW COMB.	Arizona
<i>subtenuis</i> (Casey, 1912:112) NEW COMB.	Arizona

GROUP II (elytra not rugose, pronotum carinate).

<i>carinatus</i> (LeConte, 1851:128)	California
<i>quadripennis</i> (Casey, 1912:113) NEW COMB.	Baja Calif.
<i>sophistes</i> (Casey, 1912:113) NEW COMB.	California

GROUP III (elytra not rugose, pronotum not carinate).

<i>actuosus</i> (Horn, 1870:284) NEW COMB.	California
<i>adversus</i> (Casey, 1912:114) NEW COMB.	Arizona
<i>corrosus</i> (Casey, 1912:117) NEW COMB.	Washington
<i>densicollis</i> (Horn, 1894:417) NEW COMB.	Washington
<i>haruspex</i> (Casey, 1912:115) NEW COMB.	Utah
ssp. <i>ellypsipennis</i> (Casey, 1912:116) NEW COMB.	Utah
<i>jaegeri</i> (Papp, 1961a:107) NEW COMB.	California
<i>opimus</i> (Casey, 1912:115) NEW COMB.	California
<i>pantex</i> (Casey, 1912:116) NEW COMB.	Nevada
<i>porcatus</i> (Papp, 1961b:109) NEW COMB.	California
<i>reflexus</i> (Casey, 1912:114) NEW COMB.	California
<i>rugosus</i> (Papp, 1961a:157) NEW COMB.	California
<i>uteanus</i> (Casey, 1924:308) NEW COMB.	Utah

GENUS *Pelecyphorus* SOLIER

Pelecyphorus Solier, 1836:467.

Type-species: *Pelecyphorus mexicanus* Solier, 1836:469; by subsequent designation of Casey, 1912:105. LECTOTYPE hereby designated as a male specimen in the Muséum National d'Histoire Naturelle, Paris, bearing the following labels: a green label with black border "Mexicanus", and a green disk "Pelecyphor. mexicanus Sol." with additional illegible script. A third label has been added reading "LECTOTYPE male *Pelecyphorus mexicanus* Solier. Examined by Kirby W. Brown Aug. 1968". PARALECTOTYPE hereby designated as a female specimen in the same museum, bearing a green disk "Pelecyphor. mexicanus" with additional illegible script. A second label has been added similar to the above lectotype label, but reading "PARALECTOTYPE female," etc. Type-locality: "Mexique". Such a broad designation probably contributed to Casey's confusion of

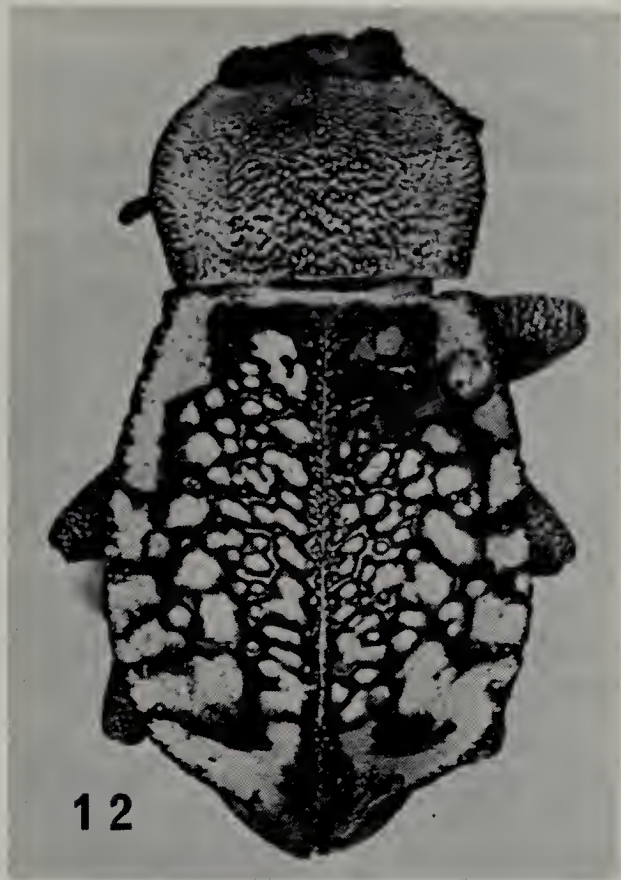


FIG. 11: *Philolithus carinatus* (LeConte). Lectotype male in the Museum of Comparative Zoology. Length: 17 mm.

FIG. 12: *Pelecyphorus mexicanus* Solier. Lectotype male in the Muséum National d'Histoire Naturelle, Paris. Length: 15 mm.

Philolithus with *Pelecyphorus* as the former genus does occur in northern Mexico. The range of *Pelecyphorus* is in fact far removed from that of any species of *Philolithus*. Therefore I feel that it is important to restrict the type-locality of *P. mexicanus*. Of the specimens on hand, those from the vicinity of Chapulco are most similar to the syntypes. The type-locality of *P. mexicanus* is herewith restricted to 3 km. south of Chapulco, Puebla State, Mexico.

Generic description: Mentum large, trapezoidal to broadly cordate; notched apically; usually separated from postgenal process by a narrow space and from mandibles by a wide space (Fig. 6). Gular pedestal distinct, arcuato-emarginate, about two-thirds as wide as mentum. Postgenal process extending as far as middle of mentum. Ligula small, notched, visible, not retracted under mentum. Apical segment of male maxillary palpi enlarged and scalene, with proximal angle acute (Fig. 7). Apical segment of female maxillary palpi smaller and recti-triangular (Fig. 8). Eyes elongate, narrow, distinctly, and broadly emarginate (Fig. 9). Tarsi with short spiniform hairs beneath. Anterior tibiae flattened apically, strongly tuberculate with dorsal apical angle pronounced and acute. Prosternal process narrow, prominent, with posterior surface almost perpendicular to mesosternum, and only weakly impressed between procoxae. Basal margin of pronotum weakly bisinuate, with hind angles sometimes acute and occasionally projecting backward over elytra (Fig. 10). Width of pronotum at hind angles slightly less than width of elytra at humeri. Pronotum coarsely punctured, the punctures bearing fringed, squamose setae. Sculpture of elytral disk coarsely reticulate to carinate,

with squamiform and stellate setae in depressions and on inflexed sides (Fig. 32). Depressions often coated with earthy matter.

Remarks: The genus *Pelecyporus* is now considered monotypic for *P. mexicanus* Solier. This species is unique among the North American Asidini. The stellate setae are the most unusual feature. They are present on the sides of the elytra, and tightly packed into the depressions on the disk. Sometimes they are coated with dirt or are so tightly packed that the nature of individual setae cannot be seen. The bold and chaotic, reticulate pattern of strong, black ridges on the elytral disk is also unique. It is so variable that no two specimens are alike. Sometimes the lateral reticulations are suppressed leaving a pattern of two longitudinal carinae on each elytron. This tendency is more frequent in the populations around Cacaloapan.

Since this species is rare in most collections and the only published records are those in Champion (1884), the following records of 165 specimens are listed (Fig. 13).

Abbreviations are from Arnett and Samuelson (1969). KWBC is presently housed at PMNH. MEXICO, PUEBLA: Cacaloapan, 15 July 1965, A. R. Gillogly (5; KWBC, RESC); 18 mi. W. Cacaloapan, 15 Aug. 1965, A. R. Gillogly (11; KWBC, UCRC, RESC); 19 mi. NW. Cacaloapan, 30 July 1963, J. Doyen (25; J. Doyen Coln., KWBC); 2 km. S. Chapulco, 6600 ft., 11 Aug., 1967, K. W. Brown (1; CDAE); 3 km. S. Chapulco, 6800 ft., N. slope, Joshua tree, Acacia, 7 Aug. 1967, K. W. Brown, and M. E. Irwin (3 TOPOTYPES; INIA, KWBC, UCRC); 4 km. S. Chapulco, Joshua tree, Opuntia, 11 Aug. 1967, K. W. Brown (4; KWBC); 3 mi. E. Chapulco, 15 Aug. 1965, A. R. Gillogly (1; CNCI); km. 275, Hwy. 15, NE. of Chapulco, Yucca desert, August (2; CUIC); Tehuacán, Höge (101; British Museum, ANSP, CASC, AMNH, FMNH, MCZC); 25 mi. W. Tehuacán, 31 Aug. 1956, A. E. Lewis (3; ICCM, KWBC, USNM); 11 mi. S. Tehuitzingo, 4100 ft., Aug. (1; TAMU). QUERÉTARO: 3 mi. W. Querétaro on Hill 9, thorn scrub, August (2; CUIC). VERACRUZ: 2 mi. NW. Acultzingo, 4 July 1963, F. Coyle, and J. Beatty (2; OSUC); Coscomatepec, 5000 ft., 30 June 1948, W. W. Delquist (1; CASC); Jalapa, W. Schaus (3; AMNH, KWBC).

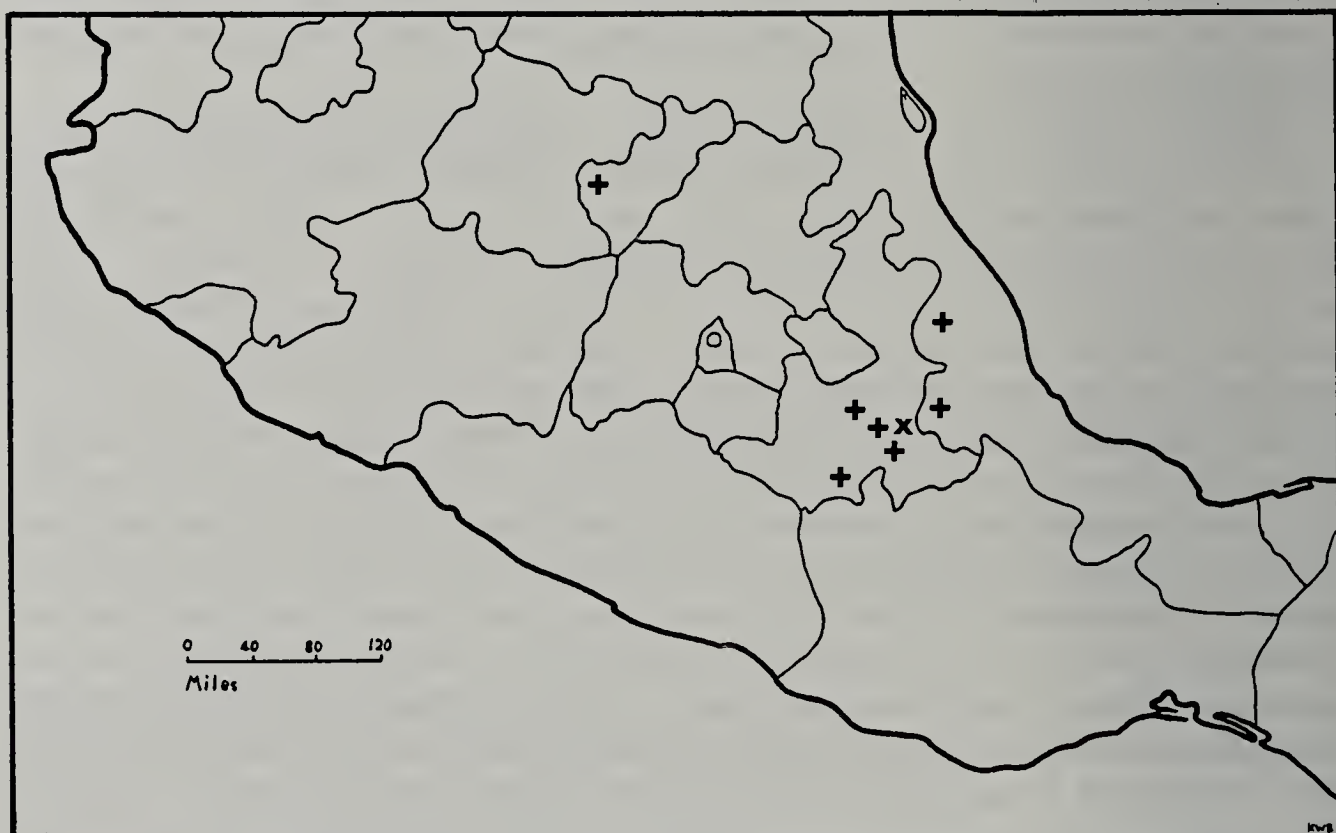


FIG. 13: *Pelecyporus mexicanus* Solier. Distribution in central Mexico. Restricted type locality marked "x".

SPECIES EXCLUDED FROM *Philolithus* AND *Pelecyporus*1. *Asidina semilaevis* (Horn) NEW COMBINATION

Asida semilaevis Horn, 1870:284, plate 15, Fig. 6 (western Nevada).

Trichiasida semilaevis (Horn), Casey, 1912:182.

Pelecyporus semilaevis (Horn), Tanner and Packham, 1962:110, Fig. 1.

Until Tanner and Packham (1962) reported collections made at the Nuclear Test Site, Mercury, Nevada, this species was known only from the unique type from "western Nevada". Except for the greater number of carinae, it closely resembles *Asidina confluens* (LeConte). In both species the ligula is visible and not retracted, and the maxillary palpi are not as large or as sexually dimorphic as in *Philolithus* or *Pelecyporus*. The larvae of *confluens* and *semilaevis* are also similar.

2. *Stethasida laevigata* (Papp) NEW COMBINATION

Pelecyporus laevigatus Papp, 1961a:159, Fig. 2 (southern California).

This species is clearly a member of the well defined genus *Stethasida*. It has the broad, porrect, posteriorly margined prosternal process which distinguishes this genus from all other similar Asidini (Fig. 30). It closely resembles *S. obsoleta* (LeConte).

3. *Notiasida lugubris* (Wilke) NEW COMBINATION

Pelecyporus lugubris Wilke, 1922:269, plate 2, Fig. 18 (Mexico).

The identity of *P. lugubris* was long elusive, as none of the specimens on hand seemed attributable to this species. However it appeared to be a *Notiasida* based on the published photograph and on statements in the original description. The posterior angles of the pronotum are acute and project backward over the base of the elytra, and the humeri of the elytra are strongly curved upward. Recently I concluded that 2 specimens from Iowa State University, which until now had defied determination, were this species. They have the following data: 20 mi. W. Durango, Mexico, 31 Aug. 1957, J. C. Schaffner. They match the description and illustration well, and clearly belong in the genus *Notiasida*. The presence on the elytra of a weak metallic shine distinguishes *lugubris* from other species of *Notiasida*.

This Mexican genus presents many problems. Specimens are very rare in collections. Each of the dozen other specimens of *Notiasida* on hand appears unique to some degree. Extensive series of specimens will be needed before the species can truly be delineated. At the generic level, the separation between *Notiasida* and the *opaca* group of the genus *Asidopsis* seems quite tenuous.

KEY TO THE GENERA OF THE TRIBE ASIDINI IN NORTH AMERICA.

In order to incorporate the changes proposed in this paper, and because no existing keys include all of the Mexican genera, the following key is

offered covering Mexico, the United States, and Canada. It must be pointed out that the generic classification at present is not in a satisfactory state. Many of the genera, such as *Trichiasida*, *Parasida*, and *Notiasida*, are not well characterized and contain mixtures of elements from other genera. Therefore some species may not key well. Those genera with minor problems of this type are marked * in the key, while those with major problems are marked **. No attempt has been made to fit in several new genera

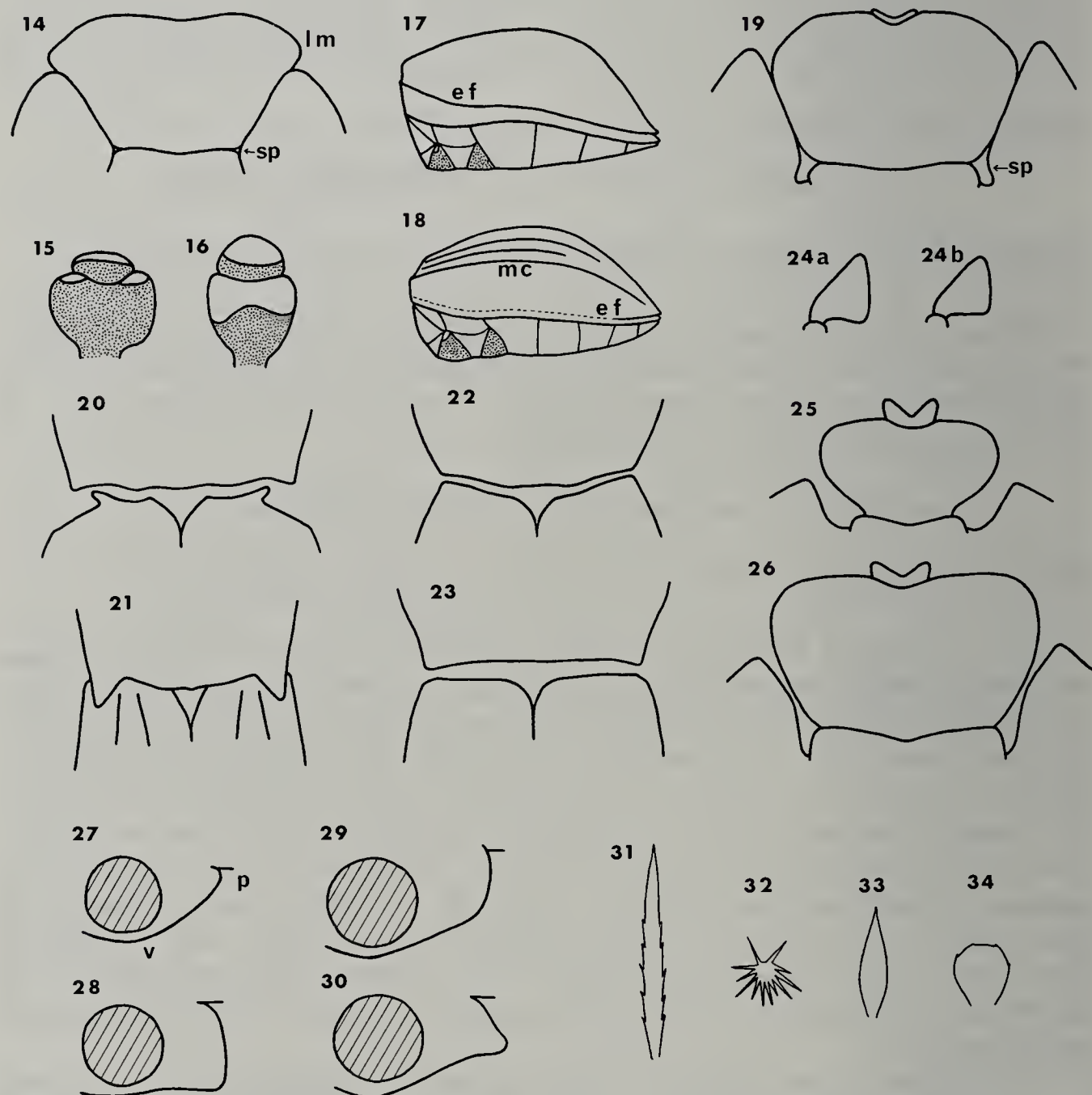


FIG. 14: *Astrotus*, mentum showing lateral margin (lm), and minute basal corner space (sp). FIG. 15-16: apical antennal segments. 15) *Astrotus*. 16) *Sicharbas*. FIG. 17-18: elytra and abdomen, lateral view. 17) *Microschatia*, showing epipleural fold (ef). 18) *Parasida*, showing marginal carina (mc) and weak epipleural fold. FIG. 19 *Zaleucus*, showing large basal corner space. FIG. 20-23: pronotum-elytra junction. 20) *Glyptasida*. 21) *Parasida*. 22) *Stenomorpha*. 23) *Megasida*. FIG. 24: *Trichiasida*, apical segment of maxillary palpus; a—male; b—female. FIG. 25-26: Mentum. 25) *Asidopsis*. 26) *Megasida*. FIG. 27-30: prosternal process, lateral view (v=ventral, p=posterior). 27) *Stenosides*. 28) *Astrotus*. 29) *Poliorectes*. 30) *Stethasida*. FIG. 31-34: Setae of elytra. 31) *Platasida*. 32) *Pelecyporus*. 33) *Ucalegon*. 34) *Parasida*.

which will be described in the future. However this key should be useful for the great majority of specimens which may be in collections. It is an artificial key, and some genera key out in several places if separation at a particular couplet is not precise. Note that many of the couplets require clearly visible mouthparts, not obscured by dirt or exudate. Cleaning can be done by gently teasing with a pin or brush after soaking in warm water.

1. Mentum tightly contacting postgenal process exposing at most a minute space at basal corners; mentum sometimes contacting mandibles apically; gular pedestal weakly developed or not evident (Fig. 14); mesotrochantin small to absent 2
- 1'. Mentum usually not or but loosely contacting postgenal process (Figs. 1, 6, 25, 26), or if tightly contacting postgenal process, a large space is exposed at basal corners (Fig. 19, sp); mentum never contacting mandibles apically; gular pedestal evident and usually well developed; mesotrochantin large 5
- 2(1). Antennae thickened, penultimate segment normal with 2 distinct apical tomentose spots (Fig. 15); hind angles of pronotum not projecting backwards over elytra; ligula variable 3
- 2'. Antennae slender, tomentose area of penultimate segment broad and coalesced into continuous band (Fig. 16); hind angles of pronotum lobiform, strongly projecting backwards over elytra; ligula often visible (1 sp.; central Mexico) *SICHARBAS* Champ.
- 3(2). Ligula always hidden; epipleura of elytra narrow from apex to base (Fig. 18); epipleural fold distinct only near cauda and weak or absent over remaining length 4
- 3'. Ligula visible; epipleura narrow apically, widening toward elytral base (Fig. 17); epipleural fold usually distinct over entire length 7
- 4(3). Mesotrochantin absent; lateral margin of mentum (Fig. 14, lm) bent inward toward mandible leaving a very narrow space; postgenal process often swollen; prosternal process usually porrect behind coxae (viewed laterally), sloping precipitously toward mesosternum (Fig. 28); sculpture of elytra rough and uneven (12 spp. and subsp.; south-central U.S., Mexico) **ASTROTUS* LeC.
- 4'. Mesotrochantin small but visible; lateral margin of mentum not bent inward toward mandible, leaving a wider space near apex of moderately thickened postgenal process; prosternal process deflected behind coxae (viewed laterally), sloping at an incline toward mesosternum (Fig. 27); elytra with fine anastomosing dorsal ridges (15 spp.; SW. & central U.S., Mexico) **STENOSIDES* Sol.
- 5(1'). Epipleura of elytra narrow apically, widening toward elytral base (Fig. 17); epipleural fold usually distinct over entire length; prosternal process porrect and prominent behind coxae (Fig. 28) 6
- 5' Epipleura remaining narrow from apex to base (Fig. 18); epipleural fold very distinct near cauda and often weak or absent over remaining length; prosternal process variable 8
- 6(5). Segments of antennae and tarsi thick and compact; hind angles of pronotum not prolonged backward over elytra; mentum large and in close contact with postgenal process, concealing cardo 7

- 6'. Segments of antennae and tarsi slender and elongate; hind angles of pronotum acutely prolonged backward over elytra; mentum small and separated from postgenal process, revealing cardo (1 sp.; Ariz., northern Mexico) .. *LITASIDA* Csy.
- 7(3',6). Pronotum muricate to coarsely punctate; elytral sculpture rough, uneven, not forming parallel lines (7 spp.; so. Calif., Baja Calif.) *PYCNONOTIDA* Csy.
- 7'. Pronotum smooth to moderately punctate; elytral sculpture variable, but when rough tends to form a pattern of parallel lines (6 spp.; SW. U.S., Mexico) *MICROSCHATIA* Sol.
- 8(5'). Elytra under high magnification with scattered erect, barbed setae (Fig. 31); elytra strongly lobed posteriorly; lateral margins of pronotum strongly reflexed (3 spp.; Mexico, Baja Calif.) **PLATASIDA* Csy.
- 8'. Elytra glabrous or with simple, thickened, squamose, or stellate setae, but never with erect barbed setae; elytra usually not lobed posteriorly; pronotum variable 9
- 9(8'). Penultimate antennal segment normal, with 2 distinct apical tomentose spots (Fig. 15); pronotum not impressed medially 10
- 9'. Penultimate antennal segment with tomentose areas coalesced into a narrow continuous band, giving antennal apex a wholly spongiose appearance; pronotum usually impressed medially (5 spp.; Baja Calif.) **HETERASIDA* Csy.
- 10(9). Postgenal process projecting well beyond middle of mentum, often greatly thickened or swollen; mentum in tight, broad contact with postgenal process (Fig. 19); pronotum dilated laterally (1 sp.; central Mexico) *ZALEUCUS* Champ.
- 10'. Postgenal process never projecting beyond middle of mentum and not thickened or swollen; mentum not in tight, broad contact with postgenal process (Fig. 1, 6, 25, 26); pronotum variable 11
- 11(10'). Ligula very small, completely retracted and hidden under apical margin of mentum (Fig. 1); apical segment of maxillary palpi extremely enlarged, recti-triangular in the female (Fig. 2); scalene in the male with proximal angle acute and prolonged (Fig. 3) 12
- 11'. Ligula variable but always at least partially exposed and projecting beyond apical margin of mentum (Fig. 6, 19, 25, 26); apical segment of maxillary palpi usually only moderately enlarged (Fig. 7, 8, 24), but if extremely enlarged as Fig. 2 and 3 then ligula is very large and tumid (Fig. 25) 16
- 12(11). Tarsi with short and inconspicuous spiniform hairs beneath; elytra with distinct, though sometimes irregular carinae; pronotum variable 13
- 12'. Tarsi with long, fulvous, silky hairs beneath; elytra may be deeply sulcate, but not with distinct, well separated carinae; pronotum disk smooth, sides often dilated and reflexed (9 spp. and subspp.; western U.S., northern Mexico) *GONASIDA* Csy.
- 13(12). Pronotum with sides notably dilated (Mexico only) 14
- 13'. Pronotum with sides not or but slightly dilated 15

- 14(13). Dilated sides of pronotum acute, aliform; disk clothed with conspicuous fulvous, silky pubescence; elytra with straight prominent carinae, delineated by tufts of fulvous hairs; length under 20 mm. (1 sp.; central Mexico) *TISAMENES* Champ.
- 14'. Dilated sides of pronotum broadly rounded; disk coarsely punctured, not pubescent; elytra with undulating, sinuous carinae, not pubescent; length over 25 mm. (1 sp.; northern Mexico) *HERTHASIDA* Wilke
- 15(13'). Width of pronotum at basal angles at least $\frac{1}{5}$ greater than width of elytra at humeri (Fig. 20); elytra each with marginal carina and 2 distinct, subequal discal carinae (22 spp. and subsp.; SW. Canada, W. and central U. S., northern Mexico) *GLYPTASIDA* Csy.
- 15'. Width of pronotum at basal angles subequal to width of elytra at humeri (Fig. 5); elytra each with marginal carina and only 1 distinct discal carina, the inner carina of the preceding genus poorly defined (31 spp. and subsp.; SW. Canada, W. & central U. S., northern Mexico) *PHIOLITHUS* Lac.
- 16(11'). Hind angles of pronotum distinctly prolonged backward and overlapping elytra (Fig. 21) 17
- 16'. Hind angles of pronotum weakly (Fig. 10) or not at all (Fig. 22,23) overlapping elytra 22
- 17(16). Elytra each with 2 or 3 discal ridges varying from strongly carinate and independent or latticed, to feeble and irregular; lateral margin always carinate 18
- 17'. Elytra lacking ridges; surfaces may be smooth, punctate, rugulose, or weakly striate; lateral margin of elytra may or may not be carinate 21
- 18(17). Intervals between longitudinal elytral carinae latticed or roughly sculptured; carinae may be feeble and irregular; setae variable 19
- 18'. Intervals between longitudinal elytral carinae canaliculate, rarely broken by 1 or 2 short, raised, transverse ridges; longitudinal carinae always well defined and regular; pronotum and elytra often with fulvous, thickened or squamiform setae (Fig. 34) (26 spp. and subsp.; SW. U. S., Mexico) *PARASIDA* Csy. (part)
- 19(18). Elytra with confused sculpture, the ridges feeble and subequal; setae often thickened or squamiform 20
- 19' Elytra coarsely clathrate, with the inner longitudinal carina more strongly developed than the outer and sometimes sharply elevated; setae if present always slender and simple (5 spp.; Mexico) *BOTHRASIDA* Csy. (part)
- 20(19). Ligula large and tumid; width of mentum at base about $\frac{1}{2}$ the width at middle (Fig. 25); humeri of elytra often distinctly reflexed (7 spp; Mexico) *NOTIASIDA* Csy.
- 20'. Ligula smaller and not tumid; width of mentum at base about $\frac{2}{3}$ the width at middle (Fig. 6); humeri of elytra planate, not distinctly reflexed (see couplet 18).. *PARASIDA* Csy. (part)
- 21(17'). Mentum small, with wide space between it and postgenal process; width of mentum at base about $\frac{1}{2}$ the width at middle (Fig. 25) (28 spp.; SW. Canada, W. & central U. S., Mexico) *ASIDOPSIS* Csy. (part)

- 21'. Mentum large, often contacting postgenal process; width of mentum at base about $\frac{3}{4}$ the width at middle (Fig. 26) (11 spp.; SW. U. S., Mexico) **MEGASIDA* Csy. (part)
- 22(16'). Base of pronotum convex or convexo-emarginate (Fig. 22); hind angles of pronotum obtuse to rounded, never prominent 23
- 22'. Base of pronotum truncate, concave (Figs. 5, 23), or bisinuate (Fig. 10); hind angles of pronotum rectangular to acute, usually somewhat prominent 25
- 23(22). Apical segment of maxillary palpi greatly enlarged and sexually dimorphic, recti-triangular in the female (Fig. 3), larger and scalene with proximal angle prolonged in the male (Fig. 2); ligula large and tumid (Fig. 25); body rarely hirsute; humeri of elytra rarely prominent and reflexed; length 12-35 mm. (85 spp. & subspp.; SW. Canada, W. & central U. S., Mexico) **STENOMORPHA* Sol.
- 23'. Apical segment of maxillary palpi smaller, only moderately enlarged and often not notably sexually dimorphic, at most recti-triangular in the male (Fig. 24) 24
- 24(23'). Disc of pronotum and elytra with setae present, body often hirsute; ligula small, not tumid (Fig. 6); humeri of elytra usually inconspicuous and not reflected; length 10-30 mm. (20 spp.; SW. U. S., Mexico) ***TRICHIASIDA* Csy. (part)
- 24'. Disc of pronotum and elytra glabrous; ligula large and tumid (Fig. 25); humeri of elytra prominent and reflexed; length under 16 mm. (see couplet 21) .. **ASIDOPSIS* Csy. (part)
- 25(22'). Body with modified squamiform (Fig. 34), paddle-like (Fig. 33), or stellate (Fig. 32) setae; may be coated with earthy matter 26
- 25'. Body glabrous or with simple setae only; usually not coated with earthy matter 27
- 26(25). Surface of elytra with contrasting pattern of dark and pale colored, clustered, paddle-like to squamose setae (Fig. 33, 34); elytra each with one regular discal carina; not coated with earthy matter (1 sp.; southern Mexico) *UCALEGON* Champ.
- 26'. Elytra with only pale colored, stellate (Fig. 32), and squamiform setae, thickly packed in depressions which are often filled with earthy matter concealing setae; elytra (Fig. 12) with coarse, black reticulate pattern, lateral reticulations occasionally suppressed (1 sp.; central Mexico) *PELECYPHORUS* Sol.
- 27(25'). Prosternal process (viewed laterally) deflexed (Fig. 27) or obtusely prominent (Fig. 29) behind coxae, not sharply margined posteriorly 28
- 27'. Prosternal process (viewed laterally) porrect and extending over mesosternum (Fig. 30), broadly lobed and sharply margined posteriorly (25 spp. & subspp.; Calif., Baja Calif.) *STETHASIDA* Csy.
- 28(27). Body clothed with short, but numerous and clearly visible, setae 29
- 28'. Body glabrous, or setae very inconspicuous 31
- 29(28). Lateral margin of elytra strongly carinate, but never tuberculate; carinate margin extending from humeri almost to apex; body with evident, small setae, but not hirsute 30

- 29'. Lateral margin of elytra not carinate; or if carinate then carina is tuberculate, or is weak and does not reach humeri; body often hirsute (see couplet 24) ***TRICHIASIDA* Csy. (part)
- 30(29). Prosternal process gradually declivous, deflexed, posteriorly forming a thin lobe (Fig. 27) (6 spp.; southwest U. S., Sonora, Baja Calif.) *ASIDINA* Csy. (part)
- 30'. Prosternal process abruptly declivous, prominent, posteriorly forming a thick lobe (Fig. 29) (1 sp.; central Mexico) *POLIORCETES* Champ.
- 31(28'). Elytra each with at least one distinct discal carina; lateral margin always carinate 32
- 31'. Elytra lacking any discal carinae; lateral margin variable 33
- 32(31). Elytra with independent, regular discal carinae (see couplet 30) *ASIDINA* Csy. (part)
- 32'. Elytra coarsely clathrate, the discal carinae connected by numerous, well developed, transverse ridges (see couplet 19') *BOTHRASIDA* Csy. (part)
- 33(31'). Mentum small, with wide space between it and postgenal process (Fig. 25); width of mentum at base about $\frac{1}{2}$ the width at middle (see couplet 21) **ASIDOPSIS* Csy. (part)
- 33'. Mentum large, often contacting postgenal process (Fig. 26); width of mentum at base about $\frac{3}{4}$ the width at middle (see couplet 21') **MEGASIDA* Csy. (part)

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